Successive Interference Cancellation Using Stage Dependent Decision Functions

Bentrcia, A. Sheikh, A.U. Zerguine, A.; Dept. of Electr. Eng., King Fahd Univ. of Pet. & Miner., Dhahran, Saudi Arabia;

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Summary

In this paper, we introduce the concept of stage-dependent decision functions. The latter exploit the improvement of the soft-decisions' reliability with increasing number of stages to take more hard-decisions and thus cancels more noise from stage to stage. We prove that if the stage-dependent thresholds can be optimized at each stage then the nonlinear SIC can approach the single user bound. Simulation results show significant BER improvement compared to the SIC using stage-independent decision functions.